REMARKS/ARGUMENTS

These remarks are made in response to the Final Office Action (Office Action) of November 2, 2005 (Office Action). As this response is timely filed within the three-month statutory period, no fee is believed due.

In paragraphs 3-4 of the Office Action, Claims 1, 4, 8, 9, 10, 13 and 17 were rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter of the invention. Claims 1-9 were rejected under U.S.C. § 101 in paragraphs 5-9 as being directed to non-statutory subject matter. In paragraphs 9-14 of the Office Action, claims 1, 2, and 9-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,488,609 to Hluchyj, *et al.* (hereinafter Hluchyj) in view of U.S. Patent No. 5,951,694 to Choquier, *et al.* (hereinafter Choquier). Claims 8 and 17 were rejected under U.S.C. § 103(a) as being unpatentable over Hluchyj. Claims 3 and 12 were rejected under U.S.C. § 103(a) as being unpatentable over Hluchyj and Choquier and further in view of U.S. Patent No. 5,838,968 to Culbert (hereinafter Culbert). Claims 4-7 and 13-16 were rejected under U.S.C. § 103(a) as being unpatentable over Culbert in view of U.S. Patent Application Publication 2002/0040442 to Ishidera (hereinafter Ishidera).

With regard to rejection of Claims 1, 4, 8, 9, 10, 13, and 17, in paragraph [4] on page 2 of Office Action as lacking antecedent basis, please note the claims have been amended to provide the proper antecedent basis.

With regard to rejection of Claims 1-8, please note the claims, as amended, recite a "computer-implemented method," thereby directing the claims to statutory subject matter. Likewise, Claim 9 is amended to recite a computer-readable medium and is thus directed to statutory subject matter.

Claims 1-14, 16, and 17 have each been amended to further emphasize certain aspects of Applicants' invention. The amendments are supported throughout the Specification. No new matter has been added by virtue of the amendments herein.

Claim 1 is directed to a method for providing dynamic workload transitions in an application server for an e-business system. The method includes receiving at least one work request that includes at least one workload task having an associated workload parameter specifying a resource requirement, determining a resource capacity of the e-business system in view of the resource requirement, identifying a priority of the workload task over workload tasks currently executing within the e-business system, predicting an overload condition in view of the resource capacity for at least one system having the priority in the e-business system for executing a portion of the workload task, causing a first reallocation of at least a portion of system resources allocated to a first set of workload tasks in the e-business system from the first set of workload tasks to a second set of workload tasks in response to predicting the overload condition, executing a query of at least a portion of the first set of workload tasks included in the workload request in response to the first reallocation (See, e.g., Specification, p. 10, lines 9-11.) The processing of the second set of workload tasks requires less system resources than processing the first set of workload tasks, and the workload tasks are performed by a plurality of different applications under a direction of the e-business system. If the overload condition subsequently abates and if the first set of workload tasks require processing, a second reallocation of system resources is performed to the first set of workload tasks.

Workload transitions occur when the e-business system identifies workload parameters within a workload task and compares the resource requirements with workloads currently executing within the e-business system. Notably, the e-business system also identifies a priority of a work request and a system capable of executing a query for at least a portion of the workload task included in the workload request. As with e-business systems generally and as explicitly described in the Specification, the workloads – or tasks – are application-level tasks. (See, e.g., Specification, p. 8, lines 13-19; p. 9., line 5 – p. 10, line 13.) By definition, moreover, an e-business system involves

transactions that occur across multiple systems. A business system, accordingly, can encompass other servers, databases, clients, applications, servlets and/or devices, for example. (See, e.g., Specification, p. 8, lines 7-12.).

As noted, Claim 1 was rejected as being obvious in view of Hluchyj. Claim 1 was also rejected in view of Choquier over Hluchyj. Hluchyj, however, is focused exclusively on the "management of call-level resource allocation on selected links" between one network communicant and another. (Col. 5, lines 28-31; abstract.) The resources allocated in Hluchyj are resources "of" "selected links" of a "connection-oriented communication network," (Abstract; Col. 5, line 32 – Col. 6, line 60.) The system parameters with which Hluchyj is concerned are those relating to "routing," "call setup," "traffic types, such as voice," "audio quality," and quality of service (QoS). (Col 3., lines 18-47.) Hluchyj establishes new connections based on computing a connection path that satisfies a quality of service (QoS) constraint. Hluchyj is concerned with directing a voice signal along a connection that can accommodate the source code sampling rate. As is known in the art, variable source rate coding techniques change the sampling rate of the voice. The systems receiving the voice signal must be informed of the source rate prior to properly decoding the signal. Hluchyj discloses a performance parameter for determining whether a connection can support the voice signal. However, Hluchyj is completely silent as to how the performance parameter is transmitted or how the source code rate is determined. In contrast, Applicants teach that a work request includes a set of parameters each associated with a resource capacity requirement. The work request is examined prior to executing the work request. As work requests are received, the parameters and corresponding resource capacity are identified. Notably, the e-business system predicts whether an overload condition may occur in any of the systems. Whereas Hluchyj determines only if resource capacity is available for fully supporting a voice signal connection, Applicants' invention predicts whether an overload condition can exist in a system, and if so how, much capacity can the system support.

Hluchyj is concerned with establishing a single connection for one voice signal, and identifying the connection that can completely support the voice signal. Referring to Hluchyj, "An acceptable value for each performance parameter, such that if the corresponding available value associated with the selected path is less desirable than the acceptable value, the path is not to be used for connection establishment" (Hluchyj Col 3 lines 38-42). Hluchyj does not disclose, hint, or suggest that the selected path can be used to partially support more than one connection. Hluchyj clearly sates that the connection is not used and is therefore a teaching away from Applicants' invention. In this manner, Hluchyj manages call-level resources by blocking network calls when the "network is heavily loaded." (Col. 4, lines 27-39.) Thus, the resources with which Hluchyj is concerned are those pertaining to network links and switches. Hluchyj only determines if capacity is available to support the voice signal connection in its entirety. Hluchyj is not concerned with the processing of only a portion of the voice signal on one connection and a portion of the voice signal on another connection, as is Applicants' invention. Hluchyj is only concerned with identifying whether a connection can entirely support the resource capacity of the voice signal. Whereas Hluchyj's method is directed to identifying a single connection for a single source, Applicants' method is directed to identifying one or more connections that can process at least a portion of the work task.

Quality of service on the network, as well as the connection-oriented resources, is distinct from the application-level resources used for functions that are part of an e-business system, as recited in Claim 1. More particularly, Hluchyj does not address identifying a priority of a work request or predicting an overload condition in an e-business system. Nor does Hluchyj address causing one reallocation of at least a portion of the system resources from one set of workload tasks in the e-business system to a second set of workload tasks in response to a predicted overload condition in the e-business system. Likewise, Hluchyj does not address causing yet another reallocation of system resources that returns the system resources to the original workload if the

overload condition subsequently abates and if the original set of workload tasks yet require processing.

The argument advanced at page 5 of the Office Action states that "*Hluchyj discloses that the source of each connection, whose rate is subject to dynamic adjustment, examines the path supporting the connection periodically or based on an event trigger such that if all the links along the path are unmarked, the rate of the connection is increased from its previously agreed level to the requested level, provided the previously agreed level is lower than the requested and that the dynamic rate adjustment scheme may be implemented based on available capacity*...(Col. 5, lines 1-18)" (Emphasis Supplied). Hluchyj is not disclosing a different interpretation than the arguments Applicants previously presented. Notably, Hluchyj has done nothing more than simply state that the connection will remain connected when the rate is lower than the agreed-upon rate. Hluchyj is clearly not teaching how to reallocate resources when the required resource capacity is greater than the requested. Hluchyj is clearly teaching away from the concept or idea – resource allocation – underlying Applicants' invention. Absent significant modification, Hluchyj's call-level allocation of connection-oriented resources does not teach or suggest features recited in Claim 1.

Hluchyj does not disclose or teach how workload tasks are performed by allocating resources to execute at least a portion of a work request. With regard to the rejection of claim 1 as being unpatentable over Hluchyj in view of Choquier (Paragraph 11 of Office Action Page 4), it would not have been obvious for one of ordinary skill in the art, at the time the invention was made, to incorporate the feature of Choquier into Hluchyj to provide services with workload tasks performed by a plurality of different applications as necessary in the computing environment. Choquier discloses an interconnection of application servers into service groups for implementing a common service (Choquier col. 2 lines 1-18.) However, it would not be obvious to combine service groups with a computing environment that does not allocate resources to systems

for executing portions of a work task. Note, Hluchyj does not distribute a voice signal to be processed by more than one system. Hluchyj clearly assigns one voice signal (i.e. "common service") to one connection. Thus to assert that Hluchyj in view of Choquier is obvious would suggest that neither the context nor the actual way in which the allocation is achieved matters. Applicants respectfully submit that this is not the proper standard. Were the issue merely whether an application already teaches or suggests dynamic resource allocation, virtually all current and future computer-based inventions that rely on resource allocation would be rendered obvious since this is an "idea" that is implicit in many inventions across many fields.

Choquier in view of Hluchyj, at most, suggests the *concept* – or idea – of resource allocation, but it is not obvious as to *how* resources are dynamically allocated in the context of an e-commerce system. Moreover, there is no motivation to combine the teaching of Choquier with Hluchyj. Specifically, Applicants' invention teaches how to predict an overload in an e-commerce system and how to reallocate resources to execute at least a portion of a work request for completing workload requirements to mitigate an overload in an e-commerce system. None of the features recited in Claim 1 are taught or suggested by Hluchyj, and none are obvious in view of Choquier.

Regarding rejection of claim 2 under 35 U.S.C. § 103(a) it would not be obvious to receive a workload request in a text format for providing visualization of a resource requirement. Hluchyj is directed to monitoring voice signals by marking links. The links do not send updates to the monitoring system. Hluchyj does not receive rate parameters in a text format for monitoring system parameters in an e-business system nor analyze monitored system parameters to predict when an overload condition occurs in the e-business system. It would not be obvious as to why Hluchyj would want to receive updates given that Hluchyj does not distribute a workload across a plurality of systems.

Regarding rejection of claim 3 under 35 U.S.C. § 103(a), it would not be obvious that the monitored system parameters comprising CPU utilization, disk I/O and memory

utilization are presented in an XML format. Hluchyj is not directed to providing a text results to a user.

Claim 4 is directed to a computer-implemented method for providing dynamic workload transition in an application server for an e-business system. The method includes receiving a first work request for performing a workload task having one or more associated workload parameters specifying a resource requirement by at least one application under a direction of the e-business system, receiving HTTP status updates from one or more systems within the e-business system which describe an available resource capacity of the one or more systems based on said workload parameter, updating a status servlet and a core workload driver using the HTTP status updates to identify systems with available processing capacity, comparing said resource requirement of the first work request to identified available system resources to determine if performing the workload task of the first work request is capable of causing a system overload condition in at least one system within the e-business system.

As noted above, Claim 4 was rejected on the basis of Culbert in view of Ishidera. Culbert is directed to a mechanism for managing resources of a "host system" system across multiple tasks. (Col. 5, lines 21-40.) The system resources and tasks described in Culbert are those executing on a single system defining a "multimedia processing system" that includes a media engine subsystem and multimedia input/output (I/O). When the media engine subsystem becomes resource constrained, Culbert responds by reducing the resources available for executing current tasks on the subsystem. (Col. 9, lines 15-19.)

Ishidera is directed to determining when power needs to be conserved in an operating environment (e.g., a notebook-sized computer). The determination is based on the operating status of a power source in the form of a battery. (Para. 0006-0008; 0032) In such an event, Ishidera causes to switch to a light-load processing unit. (Para. 0033.) Ishidera is cited at page 7 of the Office Action as teaching or suggesting the "concept of

preventing [a] system overload condition by switching to a lighter load," a concept acknowledged to be lacking in Culbert.

Neither Culbert nor Ishidera disclose each of the elements recited in Claim 4. As recited in Claim 4, this embodiment of Applicants' invention is directed to providing dynamic transitions between workload tasks in an e-business system so as to mitigate an overload condition in an e-business system. In particular, Applicants' invention is directed to receiving HTTP status updates from one or more systems within the e-business system describing an available resource capacity based on a workload parameter, and updating a status servlet and a core workload driver using the HTTP status updates to identify systems with available processing capacity. Resource requirements are compared with available capacity to predict whether an overload condition will occur. Notably, Culburt does not receive a work request in an HTTP format that includes a parameter specifying a resource requirement. Culburt does not also predict whether an overload condition will occur in view of the resource requirement. Culburt determines when systems become resource constrained or tasks have difficulty accessing needed resources after the processing of the task (Col. 9, lines 15-20). In contrast, Applicants' invention predicts when an overload condition will occur in order to avoid constraining resources before the processing of the task; that is, resources are not constrained.

It would also not be obvious to incorporate the concept of Ishidera's power saving process to Culburt. Ishidera is silent with regards to an HTTP request, a status servlet, and a core workload driver. Additionally, Ishidera provides no teachings of suggestions regarding any predication of overload conditions. Accordingly, Ishidera fails to cure the deficiencies of Culburt. Neither Ishidera or Culburt, or combinations thereof teach nor suggest updating a status servlet and a core work loader driver using a work request with a parameter specifying a resource capacity. Applicants respectfully maintain therefore that Culbert in view of Ishidera fails to disclose each aspect recited and therefore fails to

render Claim 4 obvious. Applicants further respectfully maintain that Claims 5-7 are also not rendered obvious since each depends from Claim 4 and recites additional elements.

Regarding rejection of claim 5-7 under 35 U.S.C. § 103(a), it would not be obvious to analyze an XML representation of the system parameters including CPU utilization, disk I/O and memory utilization that are received within an HTTP request to predict an overload condition. Culburt does not disclose or teach interpreting work requests in an XML format.

Claim 8 is directed to a computer-implemented method for providing dynamic workload transition in an application server for an e-business system. The method can include processing a workload task having one or more associated workload parameters specifying one or more resource requirements performed by at least one application under a direction of the e-business system; monitoring e-business system resources in view of one or more resource requirements to predict an overload condition in the e-business system while processing the workload task; allocating processing resources to a lighter workload task when the workload driver predicts a system overload condition caused by the processed workload task during the monitoring step; executing a query of at least a portion of the lighter workload task in response to the first reallocation for acquiring a portion of data requested by the HTTP request; and if said processed workload task still requires processing, reporting a result of the executing a query and responding with a message to make a subsequent request to acquire a remainder of data made available by said processing followed by transitioning to the processed workload task from the lighter workload task upon availability of adequate processing resources.

Regarding rejection of claim 8 under 35 U.S.C. § 103(a), Examiner is directed to the arguments set forth in claim 1. Claim 8 was rejected on the basis of Hluchyj. As already set forth above in response to Claim 1 and 4, however, Hluchyj is exclusively focused on handling call-level network links, not an application workload and most definitely not those handled in an e-business system, as recited in Claim 8. Hluchyj is

concerned with establishing a single connection for one voice signal, and identifying the connection that can completely support the voice signal. Referring to Hluchyj, "An acceptable value for each performance parameter such that if the corresponding available value associated with the selected path is less desirable than the acceptable value, the path is not to be used for connection establishment" (Hluchyj Col 3 lines 38-42). Hluchyj does not disclose, hint, or suggest that the selected path can be used to partially support more than one connection. Hluchyj clearly sates that the connection is not used and is therefore a teaching away from Applicants invention. Hluchyj manages call-level resources by blocking network calls when the "network is heavily loaded." (Col. 4, lines 27-39.) Thus, the resources with which Hluchyj is concerned are those pertaining to network links and switches. Hluchyj only determines if capacity is available to support the voice signal connection in its entirety. Hluchyj is not concerned with processing only a portion of the voice signal on one connection, and a portion of the voice signal on another connection, as is Applicants' invention. Hluchyj is only concerned with identifying whether a connection can entirely support the resource capacity of the voice signal. Whereas, Hluchyj method is directed to identifying a single connection for a single source, Applicants method is directed to identifying one or more connections that can process at least a portion of the work task.

The argument advanced at page 8 of the Office Action states that "*Hluchyj discloses that the source of each connection, whose rate is subject to dynamic adjustment, examines the path supporting the connection periodically or based on an event trigger such that if all the links along the path are unmarked, the rate of the connection is increased from its previously agreed level to the requested level, provided the previously agreed level is lower than the requested and that the dynamic rate adjustment scheme may be implemented based on available capacity.*" (Emphasis Supplied). Hluchyj is not disclosing a different interpretation than those Applicants previously presented. Notably, Hluchyj has done nothing more than simply state that the

connection will remain connected when the rate is lower than the agreed upon rate. Hluchyj is clearly not teaching how to reallocate resources when the required resource capacity is greater than the requested. Hluchyj is clearly teaching away from the same concept or idea – resource allocation – as that underlying Applicants' invention. It would not be obvious to recognize that "the dynamic rate adjustment such as the increase from the lower level to the higher level shows the step of allocating of the adequate resource as it becomes available" as Examiner discloses, because Hluchyj does not allocate resources when the rate increase is above a previously agreed level; that is, Hluchyj does not establish the connection. (Hluchyj Col 3 lines 38-42).

In contrast, Applicants' method allocates resources because the e-business system is aware of the resource capacity available. In particular, the e-business responds sends a message to a requestor of the work request to make a subsequent request to acquire a remainder of data. Understandably, the e-business predicts the resource capacity and can inform a requester of a work load how much of the task can be processed. The requestor can submit another work load request for the remaining data after receiving the response. In contrast, Hluchyj processes the entire voice signal and thus does not need to send a message to a provider of the voice signal. Hluchyj establishes connections with links that only completely support the voice signal, hence the entire signal will be processed; that is, there is nor remainder data or a need to submit a request for more data.

Claim 9 likewise pertains to a software system for providing dynamic workload transition in an e-business system. The system includes an application server for receiving work requests and for processing workload tasks in the e-business system, the workload tasks being identified and visually presented by the work requests and being performed by a plurality of different applications under a direction of the e-business system. The system also includes a workload driver for handling workload management of the HTTP work requests received by the application server, the handling comprising predicting a resource requirement of one or more systems networked to the application

server from at least one parameter specified in the HTTP work request, diminishing processing of a currently processed workload task which causes an overload condition in the e-business system in view of the resource requirement, executing a query for at least a portion of the HTTP work request, and initiating the processing of a lighter workload task, said lighter workload task having a lighter workload than the currently processed workload task. The system can further include a status driver for reporting system resource capacity data in an XML format within an HTTP request to the workload driver, the system resource capacity data providing textual information regarding the existence of the overload condition.

Claim 9 was rejected under Hluchyj in view of Choquier. With respect, Examiner is directed to the remarks advanced on rejections of claims 1 and 4. In particular, Hluchyj only determines if capacity is available to support the voice signal connection in its entirety. Hluchyj is not concerned with processing of only a portion of the voice signal on one connection, and a portion of the voice signal on another connection, as is Applicants' invention. Hluchyj is only concerned with identifying whether a connection can entirely support the resource capacity of the voice signal. Whereas Hluchyj's method is directed to identifying a single connection for a single source, Applicants' method is directed to identifying one or more connections that can process at least a portion of the work task. Hluchyj does not disclose or teach how workload tasks are performed by allocating resources to execute at least a portion of a work request.

With regard to the rejection of claim 1 as being unpatentable over Hluchyj in view of Choquier (Paragraph 11 of Office Action Page 4), it would not have been obvious for one of ordinary skill in the art to incorporate the feature of Choquier into Hluchyj to provide services with workload tasks performed by a plurality of different applications as necessary in the computing environment. Choquier discloses an interconnection of application servers into service groups for implementing a common service. (Choquier col. 2 lines 1-18) However, it would not be obvious to combine

service groups with a computing environment that does not allocate resources to systems for executing portions of a work task. Note, Hluchyj does not distribute a voice signal to be processed by more than one system. Hluchyj clearly assigns one voice signal (i.e. "common service") to one connection. Thus to assert that Hluchyj in view of Choquier is obvious would suggest that neither the context nor the actual way in which the allocation is achieved matters.

Claim 10 is directed to a machine readable storage on which is stored a computer program that has a plurality of code sections executable by a machine. The code causes the machine to perform steps similar to those recited in Claim 1, which was rejected on the basis of Hluchyj in view of Choquier. The arguments made above in connection with Claim 1 apply equally with respect to Claim 10. Accordingly, Applicants respectfully assert that the cited art fails to render Claim 10 obvious. Applicants further respectfully assert that since Claims 11-12 depend from Claim 10 and add additional features, the claims likewise are not rendered obvious by the cited art.

Claim 13 is directed to a machine readable storage on which is stored a computer program that has a plurality of code sections executable by a machine. The code causes the machine to perform steps similar to those recited in Claim 4, which was rejected on the basis of Culbert in view of Ishidera. The arguments made above in connection with Claim 4 apply equally with respect to Claim 13. Accordingly, Applicants respectfully assert that the cited art fails to render Claim 13 obvious. Applicants further respectfully assert that since Claims 14-16 depend from Claim 13 and add additional features, the claims likewise are not rendered obvious by the cited art.

Finally, Claim 17 is directed to a machine readable storage on which is stored a computer program that has a plurality of code sections executable by a machine. The code causes the machine to perform steps similar to those recited in Claim 8, which was rejected on the basis of Hluchyj. The arguments made above in connection with Claim 8 apply equally with respect to Claim 17.

CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: February 2, 2006

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PAGE 25/25 * RCVD AT 2/2/2006 6:00:27 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/31 * DNIS:2738300 * CSID:5616596313 * DURATION (mm-ss):08-14